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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,598	12/12/2001	Shyh-Haur Su	0158/OK098	3481

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New York, NY 10022

EXAMINER

VO, ANH T N

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/021,598	SU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Anh T.N. Vo	2861	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 9 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***NON-FINAL REJECTION***

***Continued Examination***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/27/2006 has been entered.

The rejections over Amberntsson et al. (US Pat. 4,005,440), Feenstra et al (Pat. US 4,421,706) and Friedman et al (Pat. US 6,235,473) are withdrawn in view of the amendments to the claims.

***CLAIM REJECTIONS***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,10-13, and 19-20 are rejected under 35 USC 102 (b) as being anticipated by Eremin et al. (US Pat. 5,689,295).

Eremin et al. disclose in Figures 1-4 and 11-15 an ink jet print head comprising:

- an inkjet print head (1) having a plurality of fluid channels (2, 3, 4, 5) (Figures 1-2, column 7, lines 64-67);

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- a plurality of capillary tubes (11, 12, 13, 14), filled with predetermined fluids, disposed on the inkjet print head (1) so as to communicate with the fluid channels (27, 28, 29, 30) respectively and provide capillarity sufficient to prevent the fluids in the capillary tubes from leaking through the fluid channels (2, 3, 4, 5) but not so great as to prevent the fluids in the capillary tubes (11, 12, 13, 14) from dispensing through the fluid channels (27, 28, 29, 30) (Figures 1-4 and 7-10, column 1, lines 50-61 and column 6, lines 16-25);
  - wherein the capillary tubes (11, 12, 13, 14) do not communicate with each other (Figures 3-4. a base (22), having a plurality of first through holes corresponding to the capillary tubes (11, 12, 13, 14) respectively, for receiving the capillary tubes (Figures 3-4);
  - an inkjet chip (10, 15, 16), for actuating the fluids in the capillary tubes (11, 12, 13, 14) to dispense, disposed on the base (22) and provided with a plurality of second through holes corresponding to the first through holes respectively (Figures 3-4);
  - a nozzle plate (1A, 1B, 1C, 1D), for dispensing the fluids in the capillary tubes (11, 12, 13, 14), disposed on the inkjet chip (10, 15, 16) and provided with a plurality of orifices (1a, 1b, 1c, 1d) corresponding to the second through holes respectively (Figures 1-4 and 11-13);
  - wherein the first through holes, the second through holes and the orifices form the channels respectively (Figures 1-4 and 11-12);
  - wherein the inkjet chip (10, 15, 16) is adhered to the base (22) (Figures 3-4);
- wherein the nozzle plate (1a, 1b, 1c, 1d) is adhered to the inkjet chip (10, 15, 16) (Figures 1-4);
- and
- the capillary tubes (11, 12, 13, 14) are disposed in an array manner (Figures 1-4).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior arts are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8 and 14-17 are rejected under 35 USC 103 (a) as being unpatentable over Eremin et al. (US Pat. 5,689,295) in view of Cowger et al. (US Pat. 5,047,790).

Eremin et al. do not disclose the basic features of the claimed invention were stated above but do not disclose that the inkjet print head is thermal bubble type and the inkjet print head (18) is piezoelectric pressure wave type.

Cowger et al disclose in Figures 1-2 an ink jet pen comprising:

- the inkjet print head (18) is thermal bubble type (column 1, lines 20-24); and
- the inkjet print head (18) is piezoelectric pressure wave type (column 1, lines 25-29).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Cowger et al. into the ink jet print head for the purpose of ejecting ink drops from nozzles of the printing head.

It has been held that a recitation “each of the capillary tubes is filled with gel-like materials and/or with oil-like materials above the received fluid so as to prevent the fluid from leaking” is the selection of a known material based on its suitability for its intended use and is considered to be a matter of choice for engineer depending upon a particular environment that would have been obvious at the time the invention for the purpose of sealing capillary tubes to prevent ink leakage.

### ***Response to Applicant's Argument***


The applicant argues that Amberntsson et al do not teach a plurality of capillary tubes having a uniform diameter and Cowgers do not disclose capillary tubes. The arguments are persuasive. However, these limitations are suggested in Eremin et al reference as stated above.

***Allowable Subject Matter***

Claims 9 and 18 would be allowable if rewritten to include all limitations of the base claims and any intervening claims. These claims are allowed because the prior arts of record do not show that an ink jet cartridge comprising a cap, with a pressure regulator, that is disposed on the capillary tubes so that the capacity of the fluid in the capillary tubes can be enlarged without causing leakage in the combination as claimed.

***CONCLUSION***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 9:00 A.M. to 7:00 P.M.. The fax number of this Group 2861 is (571) 273-8300.



ANH T. N. VO  
PRIMARY EXAMINER  
April 12, 2006